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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,849	12/07/2005	Miki Wolf	1318MMG-US	1965
7590 07/10/2007			EXAMINER	
David Klein Dekel Patent Beit Harofim Room 27 18 Menuha VeNahala Street Rehovot Israel, ISRAEL			RUTLAND WALLIS, MICHAEL	
			ART UNIT	PAPER NUMBER
			2836	
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			07/10/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/559,849

Applicant(s)

WOLF ET AL.

Examiner

Michael Rutland-Wallis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 January 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

#### ***Drawings***

Applicant amendment to the drawings is sufficient to withdraw the previous objections.

#### ***Specification***

Applicant amendments to the specification are hereby entered.

#### ***Claims***

Applicant has added the limitation "said magnetic switch is distance separated from said capacitor" citing support for this amendment is clearly seen in Fig. 4, 5 and 7. The circuitry schematic shown in Fig. 4, 5 and 7 shows the elements of the magnetic switch and the capacitor as separate elements, however no mention of any specific distance or separating space is described. Therefore the limitation "distanced separate" in treating the merits of the claims will be treated as any separation between a magnetic switch and capacitor.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. There is no basis in Applicant's original disclosure for the negative limitation contained within claims 13 or 14 "inductance of said magnetic switch does not interact with capacitance of said capacitor". The inductance of the inductor and the capacitance of the capacitor are not mentioned nor is any interaction or lack of any interaction disclosed. Applicant primarily focuses on the low-impedance path and advantages provided by the use of a freewheeling diode. Therefore Applicant's added limitations contained within claims 13 and 14 fail to comply with 35 U.S.C. 112, first paragraph.

### ***Response to Arguments***

Applicant's arguments filed 6/11/2007 have been fully considered but they are not persuasive.

Applicant alleges the windings of Weiner are not lumped in a location separate from the capacitance between winding 62 and shield 64, i.e. the magnetic switch is not distance separated from the capacitor. Citing col. 4 for of Wiener, "the inductance of winding 62 interacts with the capacitance of winding 62 and shield 64, resulting in excellent pulse formation, while occupying minimal space." In response Weiner teaches a distance  $d$  defines the separation between the identified components in Fig. 4 (col. 4 lines 30-35). Weiner further teaches (col. 4 line 60) increasing or decreasing the distance may be changed in order to change the capacitance. Therefore a distance separates the magnetic switch and capacitor.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Weiner et al. (U.S. Pat. No. 4,612,455)

With respect to claim 1 Weiner teaches a high voltage magnetic compression modulator comprising: a low-voltage part (i.e. circuitry to the left side of step-up transformer) comprising an energy source (item 22) connected to a primary winding

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(item 52) of a pulsed transformer (item 30 or 50); and a high-voltage part (i.e. circuitry to the right side of step-up transformer) comprising a secondary winding (item 56) of said pulsed transformer connected to a capacitor (see Fig. 4 Weiner shows plates or shields item 64 separated by a dielectric material item 66 which serve as a capacitor to store or charge voltage for pulse), said capacitor being connected to a magnetic switch (Weiner shows in figure 4 inductive windings item 62 around a core item 68, which serve to constitute an inductor and function as a magnetic switch upon the collapse of the induced field in the transformer windings), said magnetic switch being connected to a load (item 72); characterized in that said magnetic switch is distance separated (distance "d" in Fig. 4) from said capacitor a unidirectional low-impedance path (path containing diode item 74) for the charge of said capacitor is connected in parallel (see connection of Fig. 3) to said load (item 72) and wherein the said low impedance path includes a freewheeling diode (item 74 see col. 3 lines 54-56).

With respect to claim 2 Weiner teaches the low-voltage part further comprises a storage capacitor (item 26) and a fast high-current commutator (item 28), all connected in series in a loop with said primary winding (item 52) of said pulsed transformer, and wherein said energy source (item 22) comprises a capacitor charger (the supply input charges the capacitor).

With respect to claim 3 Weiner teaches the charger is connected to the storage capacitor and to the fast high-current commutator (see Fig. 3).

With respect to claim 4 Weiner teaches pulsed transformer is wound on a ferromagnetic core (item 54).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiner et al. (U.S. Pat. No. 4,612,455) in view of Kotov Y A et al. (previously cited)

With respect to claim 6 Weiner teaches a high voltage magnetic compression modulator comprising: a low-voltage part (i.e. circuitry to the left side of step-up transformer) comprising a charger (item 22) with a first terminal connected to a first terminal of a storage capacitor (item 26) and to a first terminal of a fast high-current commutator (item 28), and with a second terminal connected to a second terminal of said commutator and to a first terminal of a low-voltage winding (item 52) of a pulsed transformer (item 30 or 50), the second terminal of said low-voltage winding being connected to the second terminal of said storage capacitor; and a high-voltage part (i.e. circuitry to the right side of step-up transformer) formed by said high-voltage transformer wound on a ferromagnetic core (item 54) whose secondary winding (item 56) is connected in parallel (see connection of Fig. 3) to a first capacitor (see Fig. 4 Weiner shows plates or shields item 64 separated by a dielectric material item 66 which serve as a capacitor to store or charge voltage for pulse) and by a second of its terminals to a

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first terminal of a magnetic switch (Weiner shows in figure 4 inductive windings item 62 around a core item 68, which serve to constitute a inductor and function as a magnetic switch upon the collapse of the induced field in the transformer windings), a second terminal of the magnetic switch being connected to a first terminal of a load (item 72), a second terminal of said secondary winding being connected to a second terminal of said load (item 72); characterized in that said magnetic switch being connected to a load (item 72); characterized in that said magnetic switch is distance separated (distance "d" in Fig. 4) from said capacitor a low-impedance path is provided for the charge of said storage capacitor through a freewheeling diode (item 74 see col. 3 lines 54-56) connected in parallel (see connection of Fig. 3) to said load. Wiener does not teach the details of the capacitor arrangement or the use of a second capacitor arranged in parallel as claimed. Kotov teaches a similar system to that of Wiener wherein Kotov teaches (Fig. 4 and 5) a first and second capacitor in a parallel arrangement in connection with a magnetic switch (item MS). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Weiner to include the use of a first and second capacitor arranged with the magnetic switch in order to increase the voltage of the pulse as seen in Kotov.

With respect to claim 7 Kotov teaches the charger first terminal is its positive terminal and said charger second terminal is its negative terminal (see Fig. 4).

With respect to claim 8 Kotov teaches the charger first terminal is its positive terminal and said charger second terminal is its negative terminal it would have been



obvious to one of ordinary skill in the art at the time of the invention to reverse the polarity in order to utilize negative voltage and negative logic.

With respect to claim 9 Weiner as modified by Kotov teaches the fast high-current commutator comprises a thyristor.

With respect to claim 10 Weiner teaches the said ferromagnetic core. A detailed discussion relating to the magnetic curve of the core of Weiner is not given typical ferrite core pulse transformer have regular rectangular magnetization curves it would have been obvious to one of ordinary skill in the art at the time of the invention to use such a core in order to increase the efficiency and effectiveness of the transformer if it held that such a curve is not a property of the core of Weiner.

With respect to claim 11 Kotov teaches additional compression stages connected between said magnetic switch and said load and diode, each stage (see stages of Fig. 4) comprising an additional first magnetic switch, whose winding is connected in parallel (see connection of Fig. 5) to the first capacitor of this stage and by the first of its terminals to the first terminal of the second capacitor of this stage, whose second terminal is connected to the first terminal of the winding of second additional magnetic switch of this stage, the second terminal of second magnetic switch winding being connected to the first terminal of the first magnetic switch of the following stage, the second terminal of said winding of said first magnetic switch being connected to the second terminal of said load and to said diode, whose second terminals are connected to the second terminal of the second magnetic switch of the last compression stage.

With respect to claim 12 Weiner and Kotov teach at least one of said first magnetic switches (item MS) is implemented as a high-voltage transformer (see Fig. 5) wound on a ferromagnetic core. While the discussion of the magnetization curve is discussed it would have been obvious to one of ordinary skill in the art at the time of the invention to use a core with such a curve, as rectangular magnetic curve as such is typical in pulse transformers.

With respect to claim 13 and 14 Weiner teaches the device of claims 1 and 6 however does not teach inductance of said magnetic switch does not interact with capacitance of said capacitor. Kotov teaches the use of separate capacitor and inductive components seen in the stages shown in Fig. 4. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Weiner to include a separate capacitor such that no interaction is present in order to allow the connection of additional stages and higher voltage pulses.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

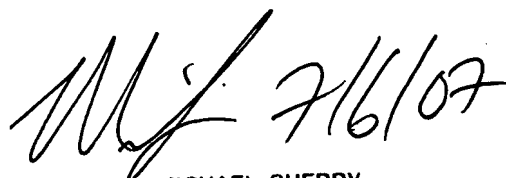
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Rutland-Wallis whose telephone number is 571-272-5921. The examiner can normally be reached on Monday-Thursday 7:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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